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ABSTRACT

The impact of telecommunications on the development of interpersonal relationships has caused the traditional, centralized industrial management model--a highly rigid, top down, hierarchical communication system--to be replaced by a new decentralized communication model--a highly flexible, interdisciplinary network where people serve one another and share information in more equal and informal management styles. Similarly, as part of the student learning network, the role of teacher is less formal and authoritative and more facilitative in helping students learn for themselves how to cope with rapid change, how to think, make decisions, solve problems, and how to gain insight and be creative. (DF)

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INFORMATION TECHNOLOGY AND INTERPERSONAL BEHAVIOR:

IMPACT ON SUPERVISOR-SUBORDINATE AND TEACHER-STUDENT RELATIONSHIPS

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Abstract

A traditional centralized industrial management model, which is characterized as a highly rigid, top-down, hierarchical communication system is being replaced by a new decentralized communication model which is described as a highly flexible, interdisciplinary network where people serve one another and share information in more equal and informal management styles. Similarly, as a part of the student learning network, the role of teacher is less formal and authoritative than previously and more facilitative in helping students learn for themselves how to cope with rapid change, how to think, how to make decisions, how to solve problems, and how to gain insight and allow creativity to surface.

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> ...society can only be understood through a study of the messages and the communication facilities which belong to it; and that in the future development of these messages and communication facilities, messages between man and machines, between machines and man, and between machine and machine, are destined to play an ever-increasing part (Wiener, 1960, p. 16).

Introduction

Information technology, now known as the field of telecommunications consists of (1) data processing and storing with its inexpensive microprocessors that produce distortion-free digital information and (2) electronic transmission with its inexpensive, world-wide microwave, satellite, and cable linkages. Telecommunications and related industries comprise one of the largest and most dynamic sectors of the American economy (Chisman, 1982).

What happens to interpersonal relationships when information technology is introduced into human communication processes? The purpose of this paper is to examine the impact of telecommunications on the development of interpersonal relationships, particularly trends in supervisor-subordinate and teacher-student relationships.

Supervisor-Subordinate Relationships

Although the post industrial society will continue to employ some farmers and factory workers, the information related industries will continue to seize a larger share of available workers. Whereas in 1967 only 25% of the GNP was controlled by the information industries, by 1970 half of the US work force was classified as people who handle information

and manipulate symbols rather than produce things, and they earned over half of all labor income (Porat, 1977). At one time, 90% of our population produced food; now only 3% of Americans work at farming. A similar decline in this century is expected in manufacturing, especially in light of advances in automation and robotics (Cater, 1981). It is the purpose of this section to describe the changing nature of boss-employee interpersonal relationships, and examine the traditional role of the supervisor in light of the impact telecommunications is having in American society.

The Traditional Industrial Model

Traditionally, boss-employee relationships were geared to the centralized factory model of the industrial age. An obvious example would be Ford Motor Company's huge plant at River Rouge where 100,000 people worked in the 1920's. Ford and other manufacturers required large concentrations of material, capital, plant, and labor which meant that 1000's of workers might have to convene daily at the same place of work. Large numbers of laborers worked more efficiently when organized vertically or hierarchically with a one-way (mass) communication system in which a top person sent information in one direction downward. Hierarchical organization included high specialization on the assembly line, differentiation, clear separation of duties and responsibilities, close supervision of subordinates, respect for authority and loyalty to supervisors, elaborate rules and controls, and impersonality (Goldhaber, 1983). Such industries were known for their pressures on workers to conform to expectations of the organization and for encouraging an assembly line mode of thinking. They were also known for upward movement, stress and tension, defensive behavior, and anxiety. The top-down organization chart and the chain of

command were symbols of boss-employee interpersonal relationships in bureaucratic organizations in the industrial age.

The Telecommunications Model in the Information Age

There are at least three alternative types of boss-employee interpersonal relationships in post industrial society depending on whether one works at home, works for a telecommunications service, or works in an information related industry such as Intel or Tandem. The distinguishing feature about many of these jobs is that the business may be more decentralized than the factories of the industrial era. Since many telecommunications services, jobs, and industries do not require large concentrations of material, capital, plant, or labor, greater diversity of boss-employee relationships is possible and encouraged.

Option One. More workers may stay home rather than report at a designated time and place. If one's home is equipped with telecommunications equipment (perhaps only a computer and a telephone), he or she can store, process, and transmit information in a way that gives access to everyone and everything that is needed to perform the job. Such an arrangement may appeal to some secretaries, clerks, handicapped workers, and those in some aspects of banking and insurance, to name but a few. Pilot projects are underway in Control Data and at the Continental Bank in Illinois (Naisbitt, 1982).

Option Two. Because information has value and may be sold, many workers may start their own data, information, telephone, or telecommunications service. Today one can start his or her own business with a telephone and a word processor. There is rapid growth of small business listings in marketing and opinion polling, data processing, programming services,

travel assistance, finance and credit, telephone services, library and resume research, home security, telecommunications, computer, and telephone systems sales such as SPRINT and ROTELCOM. The possibilities for starting a small information business are limited only by one's imagination, knowledge, and investment capability.

Option Three. Large numbers of people already work as systems analysts computer programmers and telecommunications service technicians. Today America's largest companies such as AT&T, RCA, and IBM employ millions in high tech jobs. Many workers in this industrial sector are encountering a new management style that greatly alters the traditional boss-employee relationships of the factory model. The Intel Corp, for example, is organized to avoid the traditional bureaucratic hierarchy. At Intel, (1) workers have more than one "boss," (2) committee responsibility has replaced sole responsibility, (3) private offices and privileged parking are nonexistent, (4) dress is informal, (5) all employees participate in decision making processes, and (6) all employees, even the newest, are encouraged to speak out (Lohr, 1981). To a traditional bureaucrat, the Intel model may seem chaotic, unstructured, and lacking in clear division of responsibility. The new pattern is intended to circumvent "assembly line thinking" characteristic of the industrial model and instead encourages initiative and creativity. One telecommunications company requires managers to report to their own peers to share information and enhance communication. Due to a rigid computer control of production, cost, quality, and reporting systems, managers at another telecommunications company are free to concentrate on "people-oriented projects" such as employee stock options, flexible working hours, and sabbatical leaves required of all employees

every four years.

Regardless of which option one chooses, the distinguishing feature is networking, almost a synonym for decentralization, which fosters equality and informality in worker and boss-employee interpersonal relationships. Networking describes people sharing information with each other. This new management style is lateral, diagonal, bottom up, and interdisciplinary (Naisbitt, 1982). In contrast to bureaucracies, networks provide the horizontal link. According to Hine (1977), a network may be characterized as "a badly knotted fishnet," but this fails to capture the three dimensional nature of networks making them even more complex. Whether one is in business for oneself, stays at home and works for someone else, or is employed by some information industries, one may find himself or herself embedded in a network where everyone serves everyone else. Networking captures the essence of the post-industrial society which is based on services and is a transaction between people.

Teacher-Student Interpersonal Relationships

While communications technology may have a limited role to play in the teaching-learning process in state and public funded educational institutions, nonetheless I believe that the post-industrial society in which telecommunications is the head and heart is having and will continue to have a great impact on educators in general and on teacher-student relationships in particular.

The Traditional Learning Model of the Industrial Era

The traditional educational system was geared to industry.

Everyone who recalls his or her days remembers vividly the invariant organizational structure of the teacher-led classes. Classroom windows were generally to the side of the students as they sat in fixed rows facing a blackboard, large desk, and the teacher dressed rather formally. As one moved up, grade by grade, the students remained in this rigid scheme, gaining no experience with fluid, rapidly changing organizational systems or with substituting one type of organizational form for another different type. In addition, the pattern of movement conformed to the upward mobility in industry and to the "assembly line mode of thought." In a system based on authority, teacher-student relationships were one of dominance vs submission, informed vs naive, and active (teacher) vs passive (students). Thus, in the traditional learning model, one person was viewed as the teacher of facts and skills while the other persons were viewed as a class of students there to be taught.

The New Learning Model in the Information Age

Just as the traditional learning model was geared to the pre- and industrial societies, so must the new learning model reflect the changes taking place socially, economically, and politically. I could point to the growing need for retraining of workers and the concept of life-long learning, for tudors of individuals in business and consulting services to companies and organizations, for joint ventures by universities and businesses in research and teaching, for short-term learning contracts, for general rather than specialized education of workers, and for abandoning fixed, rigid disciplines and obsolete curricula. Rather than get carried away with making too many predictions about the future of universities and schools, I prefer to deal primarily with the role of the

teacher in today's classroom.

The new learning model is designed to meet the current needs of students in the post-industrial society which are to learn (1) how to cope with rapid change, (2) how to think, make decisions, and solve problems, and (3) how to develop insights and be creative. To meet these needs, teachers must avoid the traditional model of teacher-student relationships which is based on authority and encourages assembly line thinking.

To teach students how to cope with rapid change, teachers must use variable methods of instruction in a variety of classroom settings. While the traditional method permits only vertical communication and hierarchical organization which is unidirectional, the new model emphasizes networking in that it features more horizontal communication which is interactive and participatory (Hogrebe, 1981). Unfortunately for some innovative teachers, some school and university policies regarding the number and length of classroom meetings, required teacher and/or student classroom attendance, the location of classes, and dress codes for teachers will need to undergo review if teachers are to meet the needs of the new era. Many teachers know how difficult it is to change the location of a single class or to require attendance to some event outside of the normal classroom or at a time other than the normal class hour. Today's classroom should be a mixture of inside and outside learning activities, a combination of lectures, class and small group discussions, case studies, on site visits, guest lectures, films or videotypes, a variety of structured and some unstructured games and simulations, and a combination of opportunities to speak and write. In contrast to the classroom of yesterday in which students were expected to sit, take notes, and be taught, today's students should

enroll in a course without knowing what to expect The teacher-student interpersonal relationship will emphasize more equality and informality as the teacher occupies more of a role of facilitator of change and of helper in adapting to this change.

To teach students how to think, make decisions, and solve problems, teachers must abandon the practice of basing grades primarily on recall tests. One of the interesting outcomes derived from computer technology is the realization that humans think differently from machines. The computer can store facts, manipulate them logically, and transmit them, but they cannot make decisions like humans are capable of doing. When people perceive facts, store them, and recall them for a test, they are thinking like a computer and will some day be replaced by one if they continue to think that way. Humans have the unique capacity to abstract and concretize, use variable logics, manipulate facts and symbols, and persuade others in a way that a computer cannot. Teachers should exploit this capability by helping students learn how to think, make decisions, and solve problems. Obviously such instruction must include emotional and ethical components. Today, some classroom activities should involve case studies of ethical dilemmas and some questions on tests should consist of word problems to be solved. How one evaluates facts, cultural influences on thought patterns, language and logic, ethics, the nature of man and the meaning of life, and the future and quality of life are a few of the many topics that need attention in the new curriculum. Whereas the teacher of yesterday was the authority and giver of facts and skills, today the teacher causes students to reflect on their values. The teacher-student interpersonal relationship will include a stronger affective component as the teacher occupies more

of a role of facilitator of personal emotional growth.

To teach students to be more creative, teachers need to abandon the precept that their way is the only or the right way to cope and think. To create requires the human gift of insight and the ability to look at problems from many and new angles. In essence, it is the process by which we teach ourselves. Some classroom activities should include role-playing, experientially-based techniques, brainstorming sessions, and case studies. Teachers should encourage creative, insightful solutions to problems. Inherently creative subjects in the arts should be a part of every student's course of study. Perhaps the greatest skill educators could inspire in the workers of tomorrow is the ability to learn, relearn, and unlearn. While the traditional lecturer embodied the rote-memory approach to learning, today teachers must master the creative process. The teacher-student interpersonal relationship will include an exciting new dimension as the teacher plays a greater role in facilitating the students' creative talents.

Whether or not the teacher desires to change his or her instructional methods and strategies, I believe that the system will produce such changes eventually. There is a great deal of awareness among faculty, students, and administrators that some university instructional methods and classroom strategies are obsolete and will have to be changed. At the present, education is in a state of transition but as the information age takes greater hold, I believe that it will become obvious to everyone that there must be changes in the nature of the teacher-student interpersonal relationship. Informality, equality, flexibility, adaptability, creativity will replace the traditional values that encouraged formality, authority, bureaucracy, inflexibility, and the assembly line mode of thinking. As

teachers avoid the traditional industrial model of learning and adopt the role of facilitator of personal growth, they will reorient themselves around new educational goals and better meet the needs of today's and future generations. Teaching students how to cope in a rapidly changing world, how to think, and how to create embodies the spirit of man's role in the post-industrial society.

Conclusion

Telecommunications and related computer and electronic information industries are enjoying considerable popularity in private homes and in private industry which in turn is producing an important change in worker and boss roles and their interpersonal relationships. Workers are experiencing more options as to work schedule and work place. A new management style which recognizes the concept of networking features decentralization of authority and responsibility, informality, service, and a people-orientation. A horizontal communication network is replacing the traditional top-down hierarchical communication characteristic of organizations in the industrial era.

Although communications technology may be less popular in education than private industry, the post-industrial society in which telecommunications is key will bring economic, political, and social forces to bear on the entire institution of education resulting in changes in teacher-student interpersonal relationships. As a part of the student learning network, the role of teacher will be less formal and authoritative than previously and more facilitative in helping students learn for themselves how to cope with rapid change, how to think, make decisions, and solve problems, and how to gain insight and be creative.

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